



PATENT SPECIFICATION

609,361

Application Date : March 12, 1946. No. 7677/46.

Complete Specification Left : March 11, 1947.

Complete Specification Accepted : Sept. 29, 1948.

Index at acceptance:—Classes 20(iv), B2t; and 87(i), B3(ala : d2 : f).

PROVISIONAL SPECIFICATION

Improvements in or relating to Building Construction

We, SAMUEL MAURICE CLEATOR and WILLIAM RUSSELL MOORE PIPPARD, both of the Building Research Station, Garston, Near Watford, Herts, both British subjects, do hereby declare the nature of this invention to be as follows:—

This invention relates to building construction, and in particular to the external cladding of framed buildings. The invention is particularly adapted, but not confined to the construction of relatively small buildings such as dwelling houses. An object of the invention is the provision of a system which lends itself to prefabrication of the parts, which permits rapid and convenient assembly of the parts on the site by unskilled labour without the need for bolts and nuts or other fixing accessories, and which provides a weatherproof structure without the need for cement or mortar joints.

According to the invention, the basic type of unit is similar to a board, for example of similar vertical section to weatherboarding (i.e., of upwardly tapering section) with a rebate along the lower edge (into which the upper edge of the next unit below lodges), the ends of the unit being returned inwardly, conveniently at 90°, and the unit also being provided on the back with lugs near the top and bottom edges, that or those near the top being shaped to enable the unit to be hung on horizontal members of the frame of the building, and that or those near the bottom being located and shaped so as to interlock with the top edge of the unit below when the unit is hung and so prevent movement in an outward direction of the lower edge of the unit; the units are hung with the vertical joints of successive courses in line, and vertical gutters are provided at each line of vertical joints into which the returned ends of the units project, thus carrying any moisture which penetrates between the units down to the base where it can be discharged to the exterior by suitable ducts.

A convenient section for the upper lugs is one presenting a downward slope to the rear on the underface, while a convenient section for the lower lugs is one presenting a rectangular recess in its underface. The lugs may be short and spaced apart at suitable distances having regard to the dimensions of the unit, or either or both

the upper and lower lugs may be continuous along the length of the unit.

The horizontal members of the frame may be made strong enough to transmit the weight of the units to the stanchions, or they may be of lighter section and used only as a means of tying the units back to the frame, the weight being transmitted directly from each unit to that beneath. The whole assembly will resemble weatherboarding, and the overlap of the lower edge of each unit over the upper edge of the unit below ensures weathertightness of the horizontal joints.

The length and depth of the units can be varied to suit the type of frame used, but it is convenient to make the vertical joints coincide with the stanchions of the frame. Then the vertical gutters can be secured to the stanchions. In that case the horizontal members may take the form of metal brackets which are bent into substantially U form at each stanchion, the vertical gutters being lodged in the U, so that the brackets come between the gutters and the stanchions while the parts of the brackets on which the cladding is hung stand forward of the stanchions, approximately level with the front edges of the gutters.

These cladding units which reach a corner of the building will be modified to form a suitable joint at the corner. Thus the units may here be splayed inward at 45° for a short distance, a return at right angles being provided at the end of the splayed portion, so that just as with the standard units, two returns about at the joint and project into a vertical gutter which will be set at 45° across the corner.

Modified units may also be provided to deal with particular requirements, but will not normally be necessary at door or window openings, as standard types of trims of pressed steel, timber or concrete can be used.

At the base of the wall a footing member may be used which rests on the foundation and has an upward flange which lodges in the recess of the first cladding unit proper, and also has a downwardly sloping sill projecting forward to throw off water running down the face of the wall.

The cladding units of the invention may be

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of any convenient material such as dense or lightweight concrete, sawdust or asbestos cement, metal, burnt clay, or plastics materials, reinforcement being provided if necessary or desirable. The texture and shape of the external face may be varied to suit individual taste.

The framing of the building may also be of

any convenient material, such as steel, concrete or timber, or made up of a combination of 10 materials.

Dated the 12th day of March, 1946.

H. K. WARR-LANGTON,
Agent for the Applicants.

COMPLETE SPECIFICATION

Improvements in or relating to Building Construction

We, SAMUEL MAURICE CLEATOR and WILLIAM RUSSELL MOORE PIPPARD, both of the Building Research Station, Garston, Near 15 Watford, Herts, both British Subjects, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:

20 This invention relates to building construction and in particular to the external cladding of framed buildings.

The invention is particularly adapted, but not confined to the construction of relatively 25 small buildings such as dwelling houses.

The object of the invention is the provision of a system which lends itself to prefabrication of the parts, which permits rapid and convenient assembly of the parts on the site by 30 unskilled labour without the need for bolts and nuts or other fixing accessories, and which provides a weatherproof structure without the need for cement or mortar joints.

According to the invention the basic type 35 of unit is similar to a board, for example, of similar vertical section to weatherboarding, of upwardly tapering section, provided with a rebate along the lower edge, in which the upper edge of the next unit below engages 40 when the units are hung and with means adapted to enable the unit to be hung on the frame of the building, the ends of the unit being returned inwardly, such returned ends or end flanges of the unit being adapted when 45 the units are hung with the vertical joints of successive courses in line to enter vertical gutters adapted to carry any moisture which penetrates between the units down to the base where it can be discharged to the exterior by 50 suitable ducts.

Optionally the lower edge of each unit is shaped so as to interlock with the top edge of the unit next below when the units are hung and so prevent movement in an outward 55 direction of the lower edge of the unit.

This, according to the invention at or adjacent to the upper edge of each unit there may be provided a flange or a series of spaced lugs adapted to engage a horizontal member of 60 the frame of the building.

These lugs may be formed with inclined lower faces adapted to assist in securing engagement between the unit and a horizontal member.

Further towards the lower edge of the unit 65 there may be provided recessed lugs adapted to engage the upper edge of the next lower unit.

Alternatively, or in addition, in accordance with the invention, the returned ends or end flanges of the unit may be recessed to engage a 70 horizontal member of the frame of the building or brackets or clips secured to the stanchions or uprights forming part of the frame.

These brackets or clips may be formed so that each will engage the recesses provided in 75 the end flanges of two immediately adjacent units arranged at the same level.

Further, the brackets or clips may be formed to engage rigidly or otherwise gutter elements in position with respect to ends of the adjacent 80 units.

Where the ends are provided with upper lugs a convenient section thereof is one presenting a downward slope to the rear on the under face, while a convenient section for the lower lugs 85 is one presenting a rectangular recess in its under face. The lugs may be short and spaced apart at suitable distances having regard to the dimensions of the unit, or either or both the upper and lower lugs may be continuous along 90 the length of the units.

The horizontal members of the frame may be made strong enough to transmit the weight of the units to the stanchions, or they may be of lighter section and used only as a means of 95 tying the units back to the frame, the weight being transmitted directly from each unit to that beneath. The whole assembly will resemble weatherboarding, and the overlap of the lower edge unit over the upper edge of the 100 unit below ensures weather tightness of the horizontal joints.

The length and depth of the units can be varied to suit the type of frame used, but it is convenient to make the vertical joints coincide 105 with the stanchions of the frame. In that case the horizontal members may take the form of metal brackets which are bent into substantially U-form secured by each stanchion, the vertical gutters being lodged in the U, so that the 110 brackets come between the gutters and the stanchions while the parts of the brackets on which the cladding is hung stand forward of the stanchions, approximately level with the front edge of the gutters.

Those cladding units which reach a corner of 115 the building are preferably modified to form a

suitable joint at the corner. Thus, the units may here be splayed inward at 45° for a short distance, a return at right angles being provided at the end of the splayed portion, so that just as with the standard units, two returns abut at the joint and project into a vertical gutter which will be set at 45° across the corner.

Modified units may also be provided to deal with particular requirements but will not normally be necessary at door or window openings, as standard types of trims of pressed steel, timber or concrete can be used.

At the base of the wall a footing member may be used which rests on the foundation and has an upward flange which lodges in the recess of the first cladding unit proper, and also has a downwardly sloping sill projecting forward to throw off water running down the face of the wall.

The cladding units of the invention may be of any convenient material such as dense or lightweight concrete, sawdust or asbestos cement, metal, burnt clay, or plastic materials, reinforcement being provided if necessary or desirable. The texture and shape of the external face may be varied to suit individual taste.

The framing of the building may also be of any convenient material, such as steel, concrete or timber, or made up of a combination of materials.

The invention will be described further in detail and by way of example with reference to the accompanying drawings in which:—

Fig. 1 is a fragmentary view in elevation of a portion of a building construction in accordance with the invention;

Fig. 2 is a view in sectional elevation of a wall thereof, and

Fig. 3 is a fragmentary view on a larger scale of a corner of such a building;

Fig. 4 is a view in rear elevation of one form of basic cladding unit;

Fig. 5 is a view in plan thereof, and

Figs. 6, 7 and 8 are respectively views in section on planes indicated by the lines VI-VI, VII-VII, and VIII-VIII;

Fig. 9 is a view in plan of a corner cladding unit;

Fig. 10 is a view in plan of a footing unit;

Fig. 11 being a view in section thereof;

Fig. 12 is a sectional elevation illustrating a further form of basic cladding unit engaged with a stanchion;

Fig. 13 is a plan view thereof.

Referring to Figs. 1, 2 and 3, the cladding of the building, as will be seen, is provided by the connection in the manner subsequently to be described, of a plurality of cladding units with stanchions or uprights 1 to which are connected gutter elements 2.

These gutter elements are connected with members 3 functioning as brackets which may be bolted to the gutter elements and secured by screws or otherwise to the stanchions or uprights.

With the bracket elements there are engaged a plurality of cladding units indicated generally by the reference 4 in Fig. 1 and at the corners of the building a modified form of cladding unit 5.

By omitting cladding units at appropriate positions an opening such as 6 for a door or openings 7 for windows may be provided.

The lowermost of the cladding units are engaged against footing members 8 which may be of the form shown in Figs. 10 and 11.

Each of the cladding units shown in Figs. 1 to 9 will have a vertical section similar to that of weather boarding, that is, they are of tapering section with a rebate 9 along the lower edge, the ends of the unit being formed with flanges 10 which are designed to enter the guttering, the units designed to form the corners being provided, as shown in Figs. 3 and 9, with a portion 11 inclined at an angle of 45° with respect to the general surface of the unit.

In the construction illustrated in Figs. 4 to 9, on the backs of the units there are provided lugs 12 near the top and further lugs 13 near the bottom and the lugs at the top are shaped to enable the unit to be hung on horizontal members of the frame of the building the horizontal members being indicated by the reference 14 in Fig. 2, while the lugs 13 are shaped to provide a rectangular recess 15 adapted to interlock with the top edge of the unit below it when hung, and prevent movement in an outward direction of the lower edge of the unit.

In these constructions the lower surface of each of the upper lugs is inclined as at 16.

In use the units are hung with the vertical joints of successive courses in line and the vertical gutters 17, as will be seen from Fig. 3, are arranged on each line of vertical joints into which the end flanges of the units project, thus carrying any moisture which penetrates between the units down to the base where it can be discharged to the exterior by suitable ducts.

As shown in Figs. 4 to 9, the lugs are short and spaced apart at suitable distances.

In the construction of cladding unit shown in Figs. 12 and 13, the lugs are omitted and the end flanges are provided with a cut-back portion 18 one side of this cut-back portion being furnished with a recess 19 so that in effect a portion of the end flange constitutes a hook adapted to engage a bracket 20 which may be screwed to a stanchion 21 and with which is associated a gutter 22 secured by bolts 23 to the brackets. These gutter elements need not, however, be so secured but may for instance be slipped through the brackets, the brackets fulfilling the dual purpose of holding the gutter in position and supporting the units.

Any suitable material can be used for the gutters, brackets, cladding units and stanchions and/or uprights the form of the end flanges

of the units and the shape of the gutters being varied.

For instance, the gutters may each consist of normal half round asbestos cement guttering 5 the brackets used being, for instance, of copper.

Referring to Figs. 10 and 11, it will be seen that the footing member comprises an outwardly directed portion 24 and a portion furnished with lugs 25 which is designed to be 10 engaged by the lower lugs of the basic cladding units.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:— 15

1. A basic type of external cladding unit similar to a board, for example of similar vertical section to weatherboarding, of upwardly tapering section, provided with a rebate 20 along the lower edge, in which the upper edge of the next unit below engages when the units are hung and with means adapted to enable the unit to be hung on the frame of the building, the ends of the unit being returned inwardly, 25 such returned ends or end flanges of the unit being adapted when the units are hung with the vertical joints of successive courses in line to enter vertical gutters adapted to carry any moisture which penetrates between the units 30 down to the base where it can be discharged to the exterior by suitable ducts.

2. A basic type of external cladding unit as claimed in Claim 1, in which the lower edge of each unit is shaped so as to interlock 35 with the top edge of the unit next below when the units are hung and so prevent movement in an outward direction of the lower edge of the unit.

3. A basic external cladding unit as claimed 40 in Claim 1 or 2, having adjacent to its upper

edge a flange or a series of spaced lugs adapted to engage a horizontal member of the frame of the building.

4. A basic external cladding unit as claimed in Claim 3, in which the flange or lugs are 45 formed with inclined lower faces adapted to assist in securing engagement between the unit and a horizontal frame member.

5. A basic external cladding unit as claimed in Claim 2, 3 or 4, in which towards the lower 50 edge of the unit there are provided recessed lugs adapted to engage the upper edge of the next lower unit.

6. A basic external cladding unit as claimed in any of the preceding claims, in which the 55 returned ends or end flanges of the unit are recessed to engage a horizontal member of the frame of the building or brackets or clips secured to the stanchions or uprights forming 60 part of the frame.

7. An external cladding unit as claimed in any of the preceding claims, adapted for use at the corners or angles of the building having one end splayed inward at 45° for a short distance, a return at right angles being provided 65 at the end of the splayed portion so that as with the basic units, two returns abut at the joint and project into a vertical gutter which will be set at 45° across the corner.

8. A framed building, the external cladding 70 of which is largely or entirely, except for window, door openings and the like, constituted by units as claimed in the preceding claims.

Dated this 11th day of March, 1947.

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of
London, Birmingham, Manchester & Glasgow.

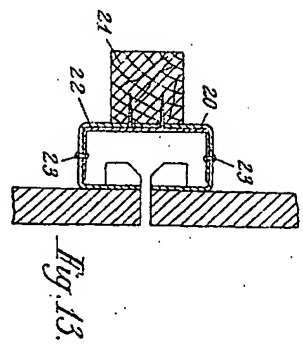
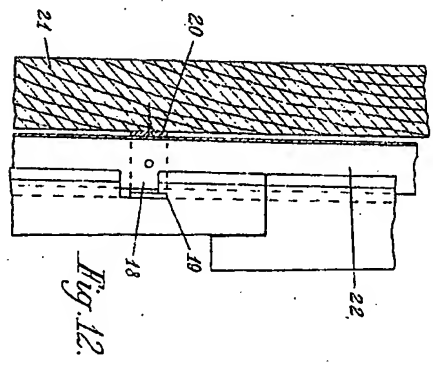
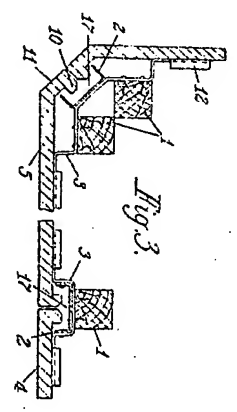
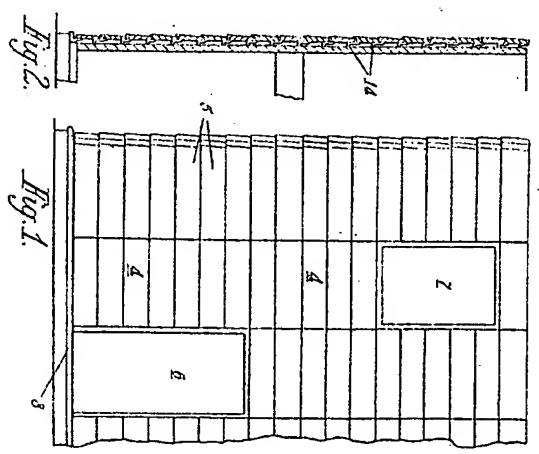
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509,361 COMPLETE SPECIFICATION

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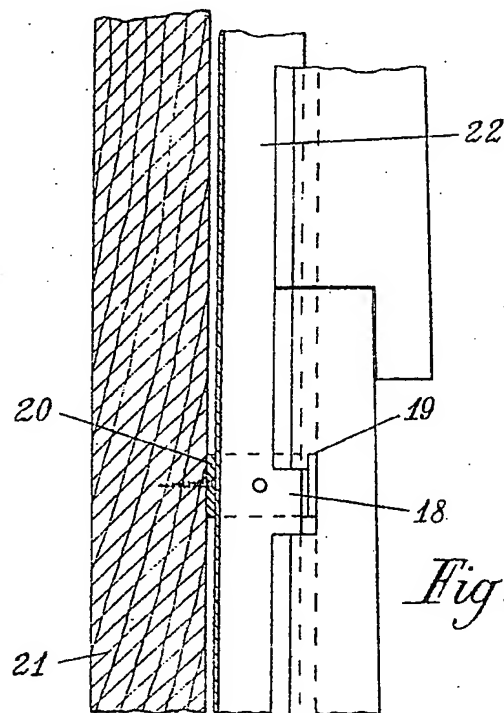
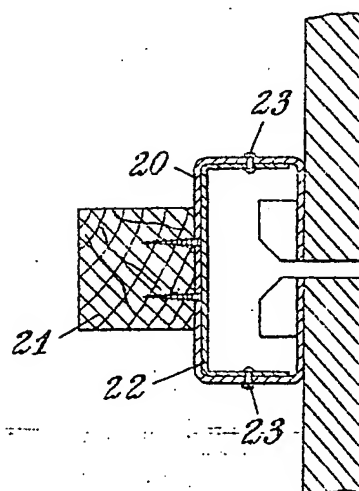
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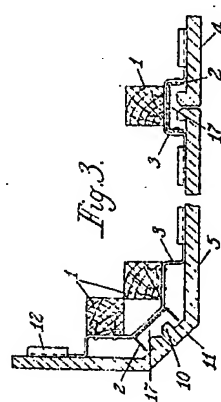
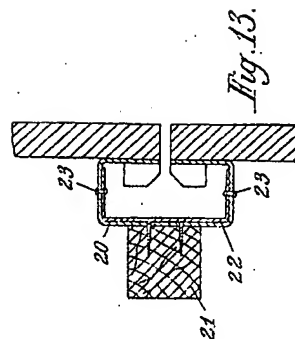
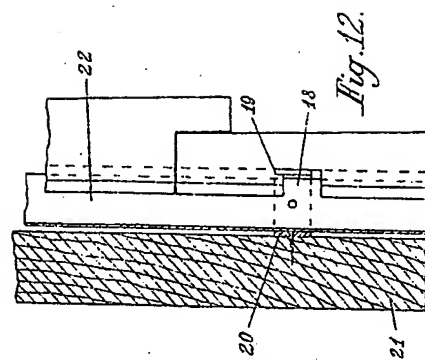
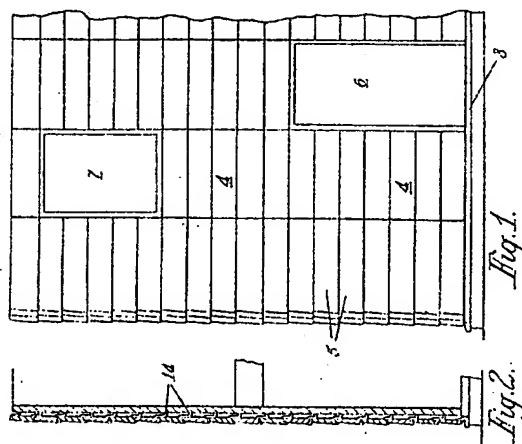
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*Fig. 12.**Fig. 13.*

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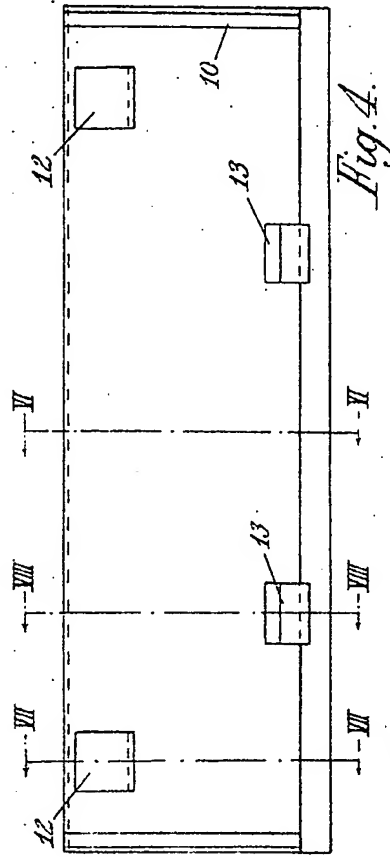


Fig. 4.

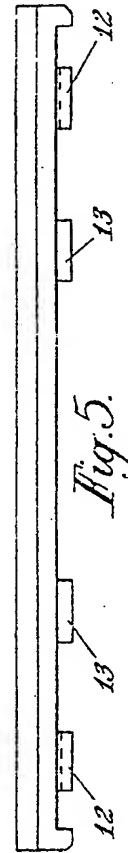


Fig. 5.

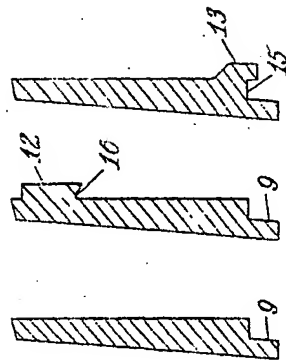
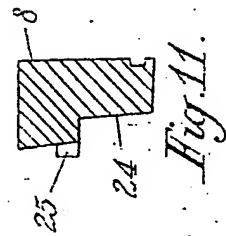
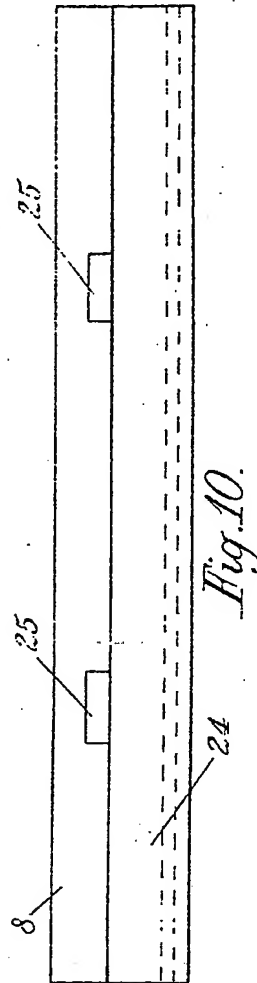
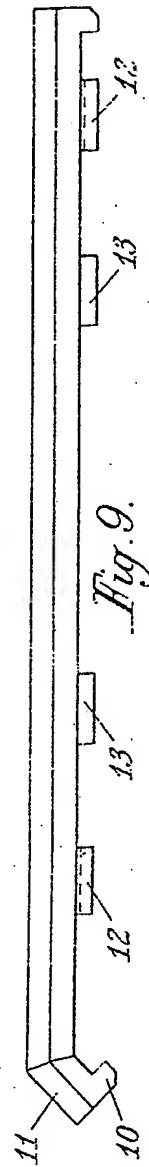


Fig. 6. Fig. 7. Fig. 8.



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